

Fig. 1

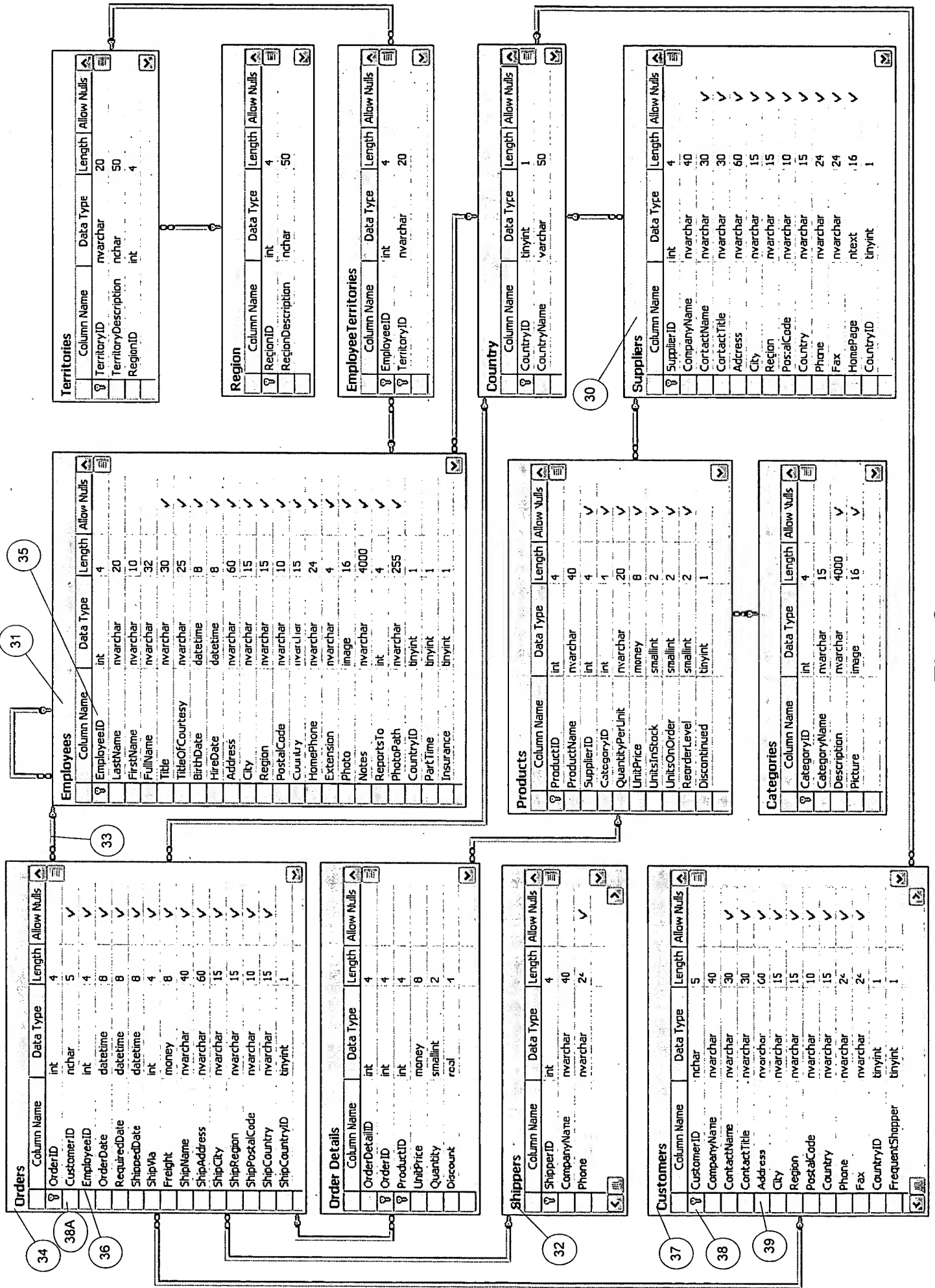


Fig. 2

Customer View				
Metadata Name	Metadata Type	Source(s)	Source Name(s)	Source Type(s)
Company Name	Field	Customers	CompanyName	Field
Contact Name	Field	Customers	ContactName	Field
Contact Title	Field	Customers	ContactTitle	Field
Address	Field	Customers	Address	Field
City	Field	Customers	City	Field
Region	Field	Customers	Region	Field
Postal Code	Field	Customers	PostalCode	Field
Country	Relation	Customers/Country	CountryID	Field/Key
Phone	Field	Customers	Phone	Field
Fax	Field	Customers	Fax	Field
Frequent Shopper	Field	Customers	FrequentShopper	Field
Customers	Aggregation Field	Customer View	Customers	Aggregation Field
Orders	Relation	Customers/Orders	CustomerID	Field/Key Field

Employee View				
Metadata Name	Metadata Type	Source(s)	Source Name(s)	Source Type(s)
Full Name	Field	Employees	FullName	Field
First Name	Field	Employees	FirstName	Field
Last Name	Field	Employees	LastName	Field
Title of Courtesy	Field	Employees	TitleOfCourtesy	Field
Title	Field	Employees	City	Field
Hire Date	Field	Employees	HireDate	Field
Birth Date	Field	Employees	BirthDate	Field
Address	Relation	Employees	Address	Field
City	Field	Employees	City	Field
Region	Field	Employees	Region	Field
Postal Code	Field	Employees	PostalCode	Field
Country	Relation	Employees/Country	CountryID	Field/Key Field
Home Phone	Field	Employees	HomePhone	Field
Extension	Field	Employees	Extension	Field
Insurance	Field	Employees	Insurance	Field
Part Time	Field	Employees	PartTime	Field
Employees	Aggregation Field	Employee View	Employees	Aggregation Field
Employee Territories	Relation	Employees/EmployeeTerritories	EmployeeID	Key Field/Key Field
Orders	Relation	Employees/Orders	EmployeeID	Key Field/Field
Reports To	Relation	Employees/Employees	ReportsTo	Field/Key Field
Subordinates	Relation	Employee View	EmployeeID	Field

Employee Territories View				
Metadata Name	Metadata Type	Source(s)	Source Name(s)	Source Type(s)
Employee Territories	Aggregation Field	EmployeeTerritories	Employee Territories	Aggregation Field
Employee	Relation	EmployeeTerritories/ Employees	EmployeeID	Key Field/Key Field
Territory	Relation	EmployeeTerritories/ Territories	TerritoryID	Key Field/Key Field

Fig. 3A

49		Orders View				
		Metadata Name	Metadata Type	Source(s)	Source Name(s)	Source Type(s)
		Order Date	Field	Orders	OrderDate	Field
		Required Date	Field	Orders	RequiredDate	Field
		Shipped Date	Field	Orders	ShippedDate	Field
		Ship Name	Field	Orders	ShipName	Field
		Ship Address	Field	Orders	ShipAddress	Field
		Ship City	Field	Orders	ShipCity	Field
		Ship Region	Field	Orders	ShipRegion	Field
		Ship Postal Code	Field	Orders	ShipPostalCode	Field
		Ship Country	Relation	Orders/Country	ShipCountryID/ CountryID	Field/Key Field
		Shipper	Relation	Orders/Shippers	ShipVia/ShipperID	Field/Key Field
		Freight	Field	Orders	Freight	Field
		Order Total	Expression	Order View	Order Details\Sum Item Amount + Freight	
	53	Orders	Aggregation Field	Order View	Orders	Aggregation Field
		Sum Freight	Aggregation Field	Orders	Freight	Aggregation Field
		Sum Order Total	Aggregation Field	Orders/Order Details/Products	OrderID/OrderID /ProductID/UnitPrice	Aggregation Field
		Avg Freight	Aggregation Field	Orders	Freight	Aggregation Field
		Avg Order Total	Aggregation Field	Order View	Order Total	Aggregation Field
		Avg #Items per Order	Aggregation Field	Orders/Order Detail	OrderDetailID	Aggregation Field
		First Order Date	Aggregation Field	Orders	OrderDate	Aggregation Field
		Last Order Date	Aggregation Field	Orders	OrderDate	Aggregation Field
		First Required Dated	Aggregation Field	Orders	RequiredDate	Aggregation Field
		Last Required Date	Aggregation Field	Orders	RequiredDate	Aggregation Field
	48	First Shipped Date	Aggregation Field	Orders	ShippedDate	Aggregation Field
		Last Shipped Date	Aggregation Field	Orders	ShippedDate	Aggregation Field
		Customer	Relation	Orders/Customers	CustomerID	Field/Key Field
		Employee	Relation	Orders/Employees	EmployeeID	Field/Key Field
	52	Order Details	Relation	Orders/Order Details	OrderID	Key Field/Key Field

51		Order Detail View				
		Metadata Name	Metadata Type	Source(s)	Source Name(s)	Source Type(s)
		Unit Price	Field	Order Details	UnitPrice	Field
		Quantity	Field	Order Details	Quantity	Field
		Discount	Field	Order Details	Discount	Field
		Item Amount	Expression	Order Detail View	Unit Price * Quantity * (1 - Discount)	
		Order Details	Aggregate Field	Order Details	OrderDetailID	Aggregation Field
		Sum Item Amount	Aggregate Field	Order Detail View	Item Amount	Aggregation Field
		Avg Item Amount	Aggregation Field	Order Details/ Order Detail View	OrderDetailID/ Item Amount	Aggregation Field
		Avg Quantity	Aggregation Field	Order Details/ Order Detail View	Quantity/Order Details	Aggregation Field
		Avg Discount	Aggregation Field	Order Details/ Order Detail View	Discount/Order Details	Aggregation Field
		Order	Relation	Order Details/Orders	OrderID	Key Field/Key Field
		Product	Relation	Order Details/ Products	ProductID	Key Field/Key Field

Fig. 3B

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Product View				
Metadata Name	Metadata Type	Source(s)	Source Name(s)	Source Type(s)
Product Name	Field	Products	ProductName	Field
Unit Price	Field	Products	UnitPrice	Field
Units In Stock	Field	Products	UnitsInStock	Field
Units On Order	Field	Products	UnitsOnOrder	Field
Quantity Per Order	Field	Products	QuantityPerOrder	Field
Reorder Level	Field	Products	ReorderLevel	Field
Discontinued	Field	Products	Discontinued	Field
Products	Aggregation Field	Products	ProductID	Aggregation Field
Sum Unit Price	Aggregation Field	Products	UnitPrice	Aggregation Field
Avg Unit Price	Aggregation Field	Products/Product View	UnitPrice/Products	Aggregation Field
Avg Units In Stock	Aggregation Field	Products/Product View	UnitsInStock/Products	Aggregation Field
Avg Units On Order	Aggregation Field	Products/Product View	UnitsOnOrder/Products	Aggregation Field
Category	Relation	Products/Categories	CategoryID	Field/Key Field
Supplier	Relation	Products/Suppliers	SupplierID	Field/Key Field
Order Details	Relation	Products/Order Details	ProductID	Key Field/Key Field

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Supplier View				
Metadata Name	Metadata Type	Source(s)	Source Name(s)	Source Type(s)
Company Name	Field	Suppliers	CompanyName	Field
Contact Name	Field	Suppliers	ContactName	Field
Contact Title	Field	Suppliers	ContactTitle	Field
Address	Field	Suppliers	Address	Field
City	Field	Suppliers	City	Field
Region	Field	Suppliers	Region	Field
Postal Code	Field	Suppliers	PostalCode	Field
Phone	Field	Suppliers	Phone	Field
Fax	Field	Suppliers	Fax	Field
Suppliers	Aggregation Field	Suppliers	SupplierID	Aggregation Field
Country	Relation	Suppliers/Country	CountryID	Field/Key Field
Products	Relation	Suppliers/Products	SupplierID	Key Field/Field

Fig. 3C

Table 50 - Database Object Properties		
No.	Name	Contents and Purpose
D01	dbUtilityTypeName	"string" containing the name of the object type used to access the referenced database
D02	connectionString	"string" containing location, access method and security associated with the referenced database

Table 51 - View Object Properties		
No.	Name	Contents and Purpose
V01	databaseID	Contains the name or token of the associated database
V02	sourceTable	Contains the name of the table in the associated database
V03	requireFilterForDetails	"true" or "false" - Determines if a query using the view requires a filter before processing a query. Usually set to "false" if the number of records in the associated database are voluminous
V04	primaryKey keyColumn	Identifies a primary key column of the associated table
V05	primaryKey dataType	Identifies the data type of a primary key column
	defaultFields	Identifies the field(s) used by the system as the default field(s) when a view associated with a relation is included in a report without following the relation
V06	defaultAggregateFields	Identifies the field(s) used by the system as the default field(s) when a view associated with a relation is included in a report without following the relation, and the relation path includes at least one to-many relationship

Table 52 - Field Object Properties		
No.	Name	Contents and Purpose
F01	databaseID	Name or token of associated database
F02	viewID	Name or token of associated view
F03	sourceColumn	Name of column in associated view
F04	dataType	"text", "numeric", "dateTime" or "boolean" - Type of data of records returned based upon field.
F05	allowAsGroupField	"true" or "false" - Identifies whether field may be used for grouping
F06	allowDrill	"true" or "false" - Identifies whether field may be used to create a drill report
F07	field type	"aggregate" - Used for aggregation or summary fields "expression" - Used for calculated expression fields
F08	field function	Function name - Used to identify the aggregate function to be applied to field values
F09	description	Custom description of field

Table 53 - Relation Object Properties		
No.	Name	Contents and Purpose
R01	databaseID	Name or token of associated database
R02	viewID	Name or token of associated view
R03	toViewID	Metadata view object to be used to display the fields and relations for a followed relation
R04	reverseID	Metadata relation object representing the reverse direction of this relation
R05	relationType	"OneToMany," "OneToOne" or "ManyToOne" - Defines the cardinality of the relation from the perspective of the "from" view
R06	joinType	"LeftOuterJoin" or "InnerJoin" - Default value is LeftOuterJoin. InnerJoin is generally set for ManyToOne relationships, while LeftOuterJoin is set for OneToMany relationships.
R07	joinKey sourceColumn	Join key column of the database table associated with the transferring view
R08	joinKey destColumn	Join key column of the database table associated with the transferred to view
R09	joinKey dataType	"text," "numeric," "dateTime," "boolean" - Data type of the join key column

Fig. 3D

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Database Object

```

<?xml version="1.0" encoding="utf-8" ?>
<object xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  (61)  xsi:type="database"
  (62)  dbUtilityTypeName="ActiveViews.Server.SQLProviders
        .SqlServerProvider.SqlServerDbUtility, ServerLibrary"
        connectionString="Initial Catalog=AVnwcomplete;
        Data Source=(local);Integrated Security=true">
  <dbUtilityProperties g:commandTimeout="180"
    xmlns:g="http://activeviews.net/SQLProviders/DbUtility/Generic" />
</object>

```

63

Customer View Object

```

<?xml version="1.0" encoding="utf-8" ?>
<object xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  (64)  xsi:type="view"
  (65)  databaseID="1218"
  (66)  sourceTable="Customers"
        requireFilterForDetails="false">
  (67)  <primaryKey keyColumn="CustomerID" dataType="Text" />
  (68)  <defaultFields>
  (69)    <field ref="northwind\Customer\Company Name" />
  (70)  </defaultFields>
  (71)  <defaultAggregateFields>
        <!-- Customer\Customers (count) -->
  (71)  <field ref="1228" type="aggregate" />
  </defaultAggregateFields>
</object>

```

72

Address Source Field Object

```

<?xml version="1.0" encoding="utf-8" ?>
<object xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  (73)  xsi:type="savedSourceField"
  (74)  databaseID="1218" viewID="northwind\Customer"
        sourceColumn="Address" dataType="Text">
  (75)  <field allowAsGroupField="false" />
</object>

```

76

Orders Relation Object

```

<?xml version="1.0" encoding="utf-8" ?>
<object xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  (77)  xsi:type="relation" databaseID="1218"
  (78)  viewID="northwind\Customer" toViewID="northwind\Order"
  (79)  reverseID="northwind\Order\Customer" relationType="OneToMany">
  (80)  <join joinType="LeftOuterJoin">
  (81)  <joinKey sourceColumn="CustomerID" destColumn="CustomerID" dataType="Text" />
  (82)  </join>
</object>

```

83

Customer Relation Object

```

<?xml version="1.0" encoding="utf-8" ?>
<object xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  (84)  xsi:type="relation" databaseID="1218"
  (85)  viewID="northwind\Order"
  (86)  toViewID="northwind\Customer"
  (87)  reverseID="northwind\Customer\Orders" relationType="ManyToOne">
  (88)  <join joinType="InnerJoin">
        <joinKey sourceColumn="CustomerID" destColumn="CustomerID" dataType="Text" />
  </join>
</object>

```

Fig. 3E

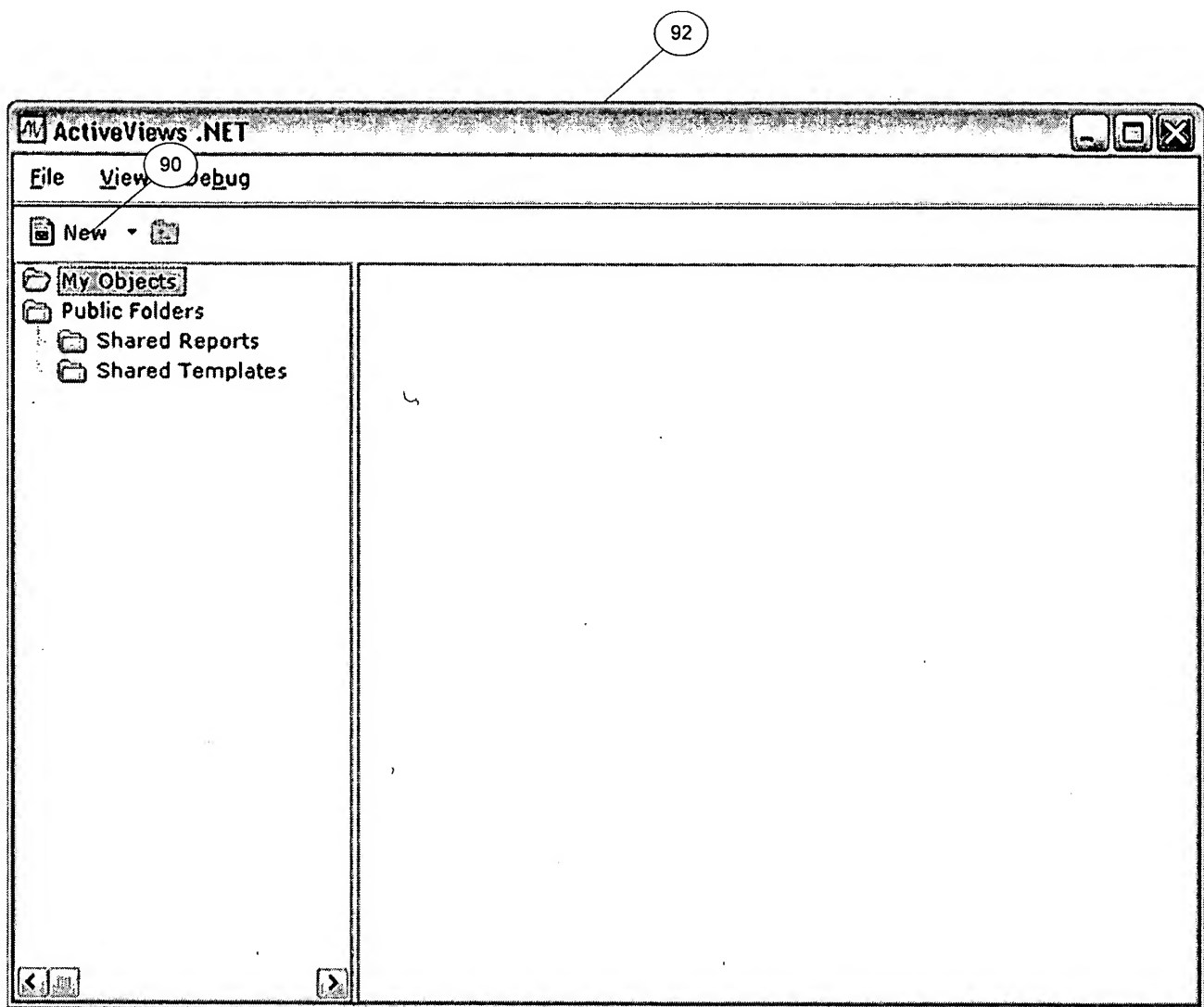


Fig. 4

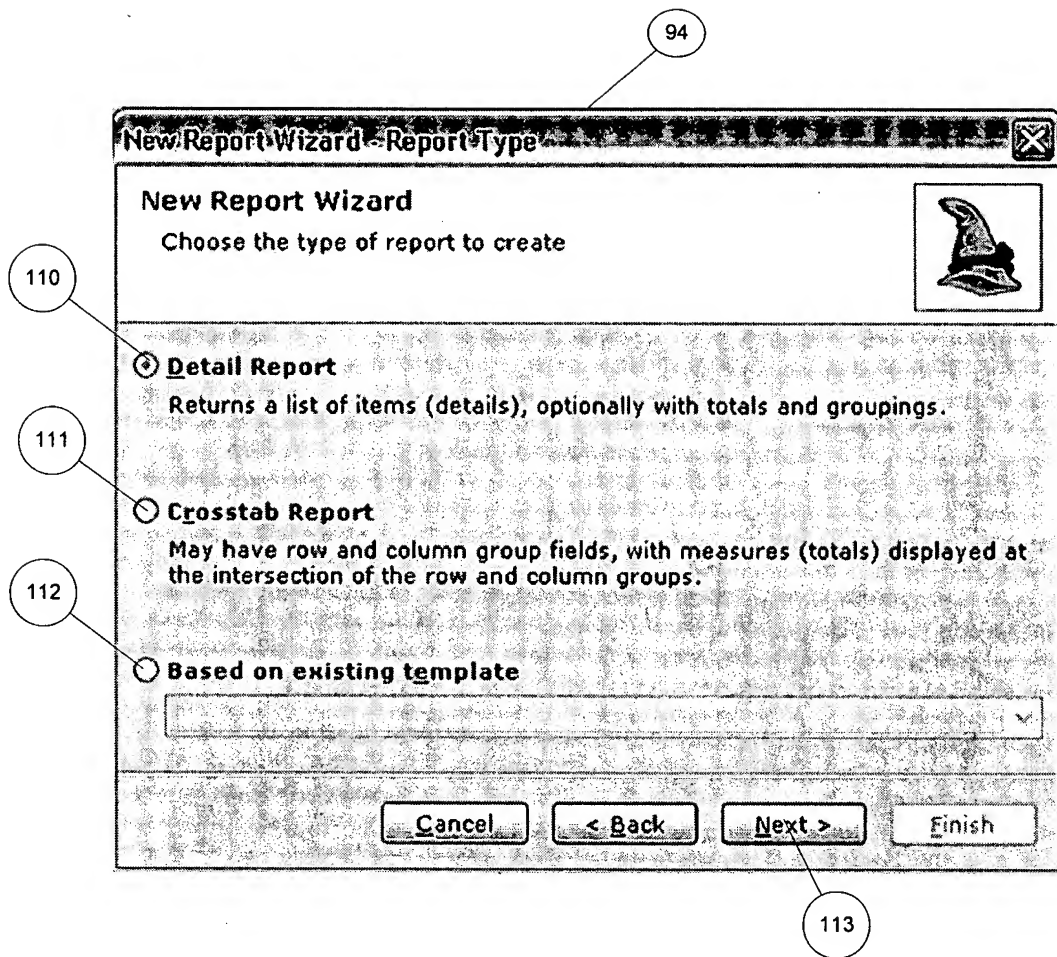


Fig. 5

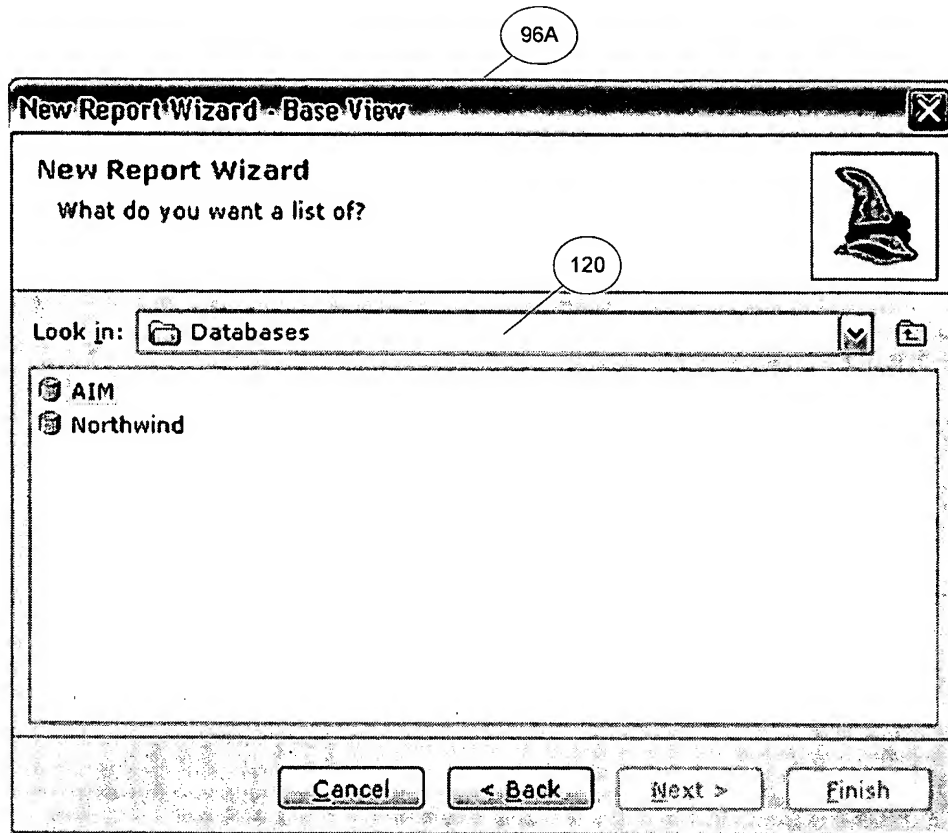


Fig. 6A

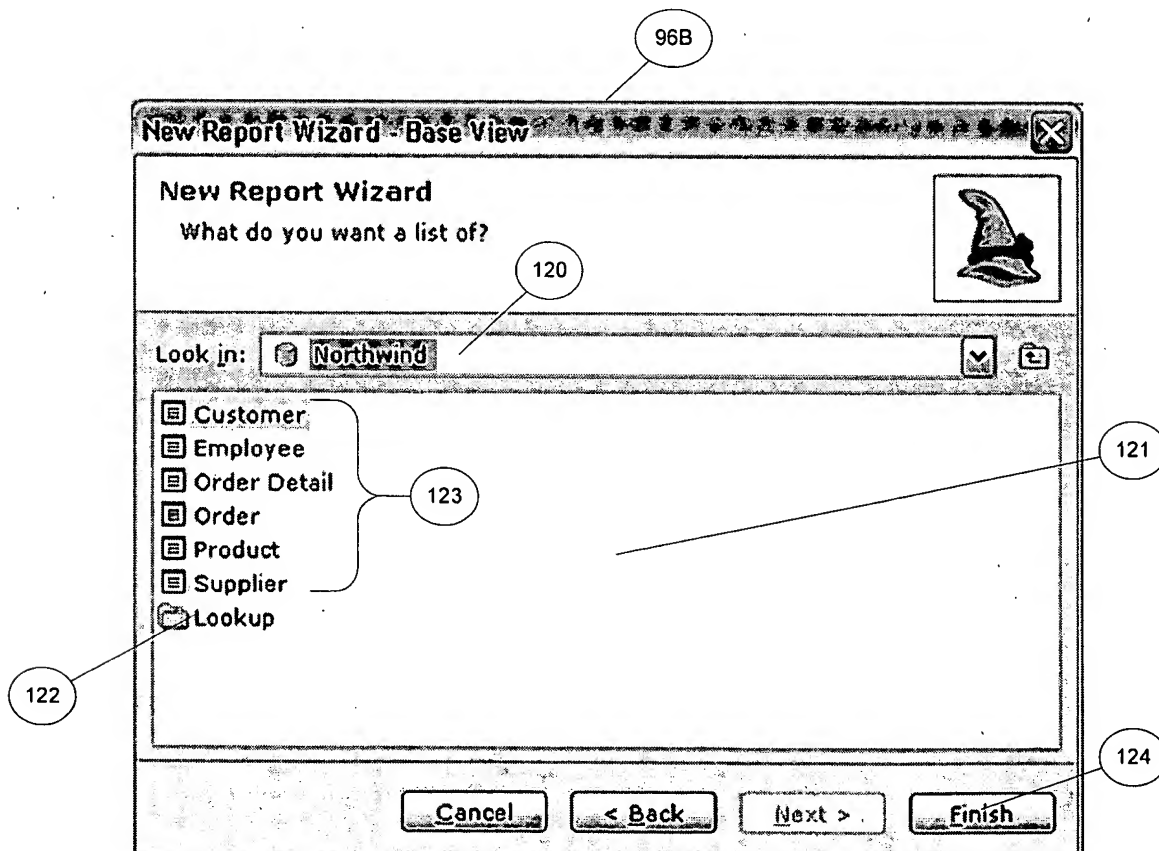


Fig. 6B

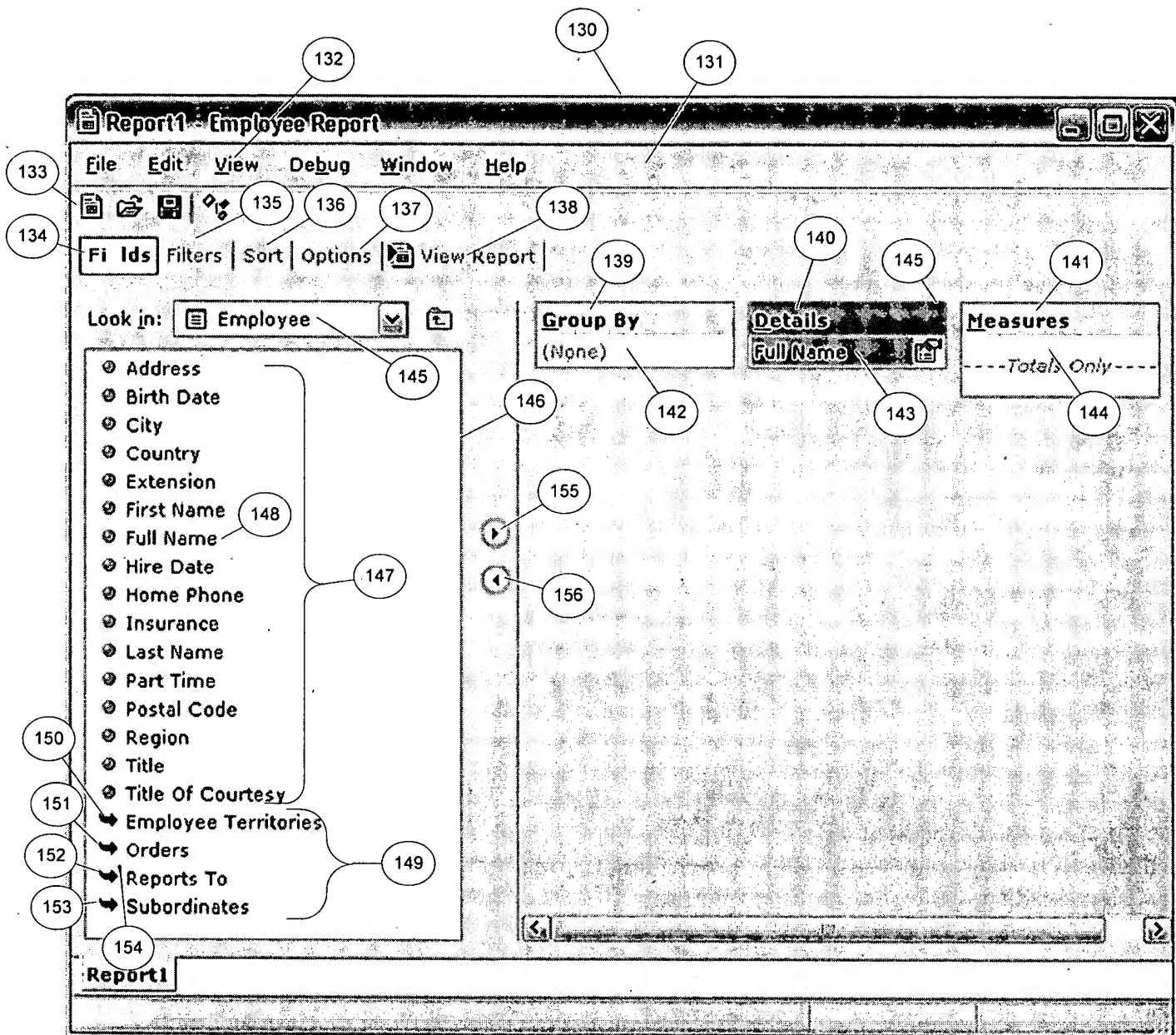


Fig. 7

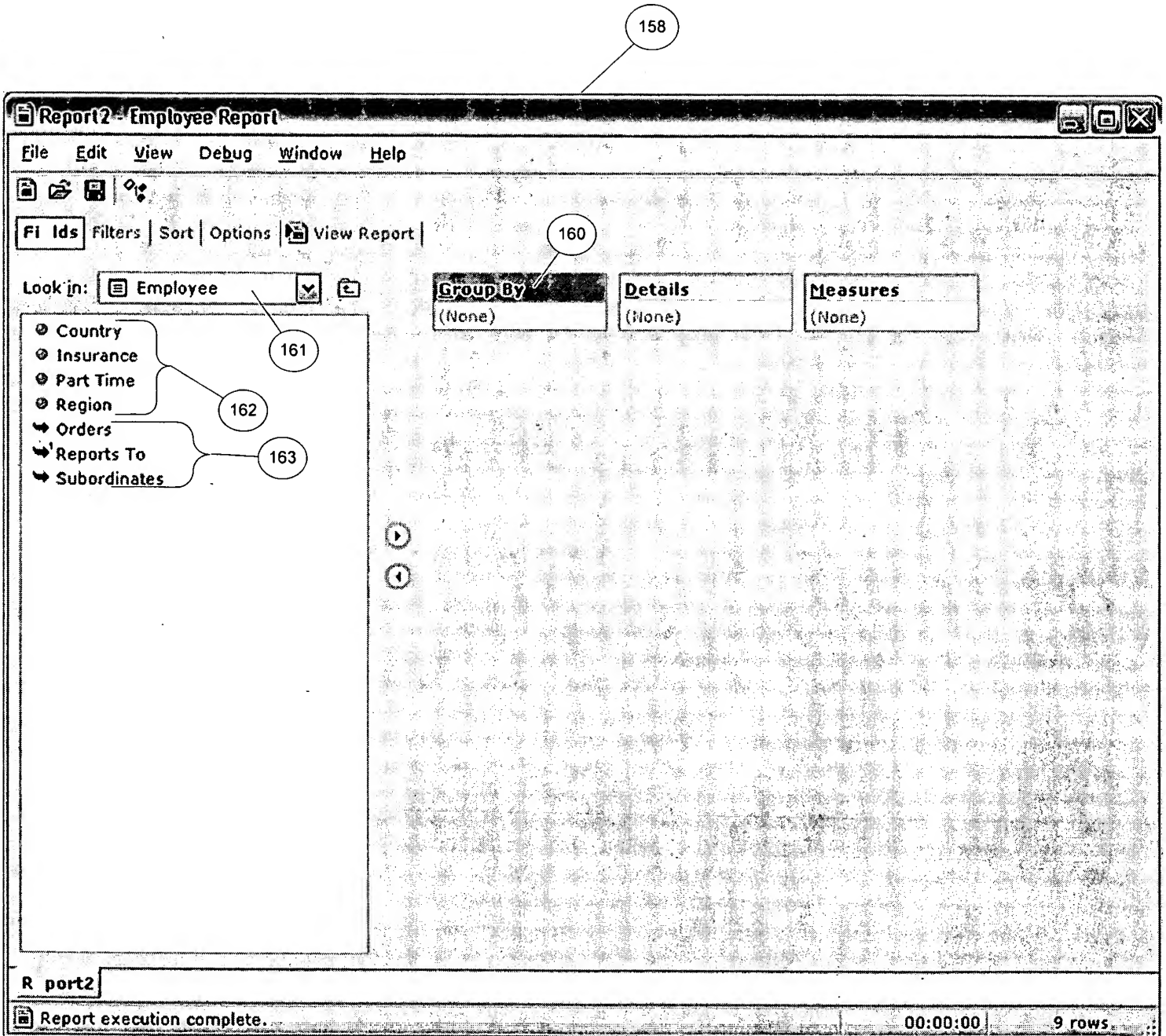


Fig. 8

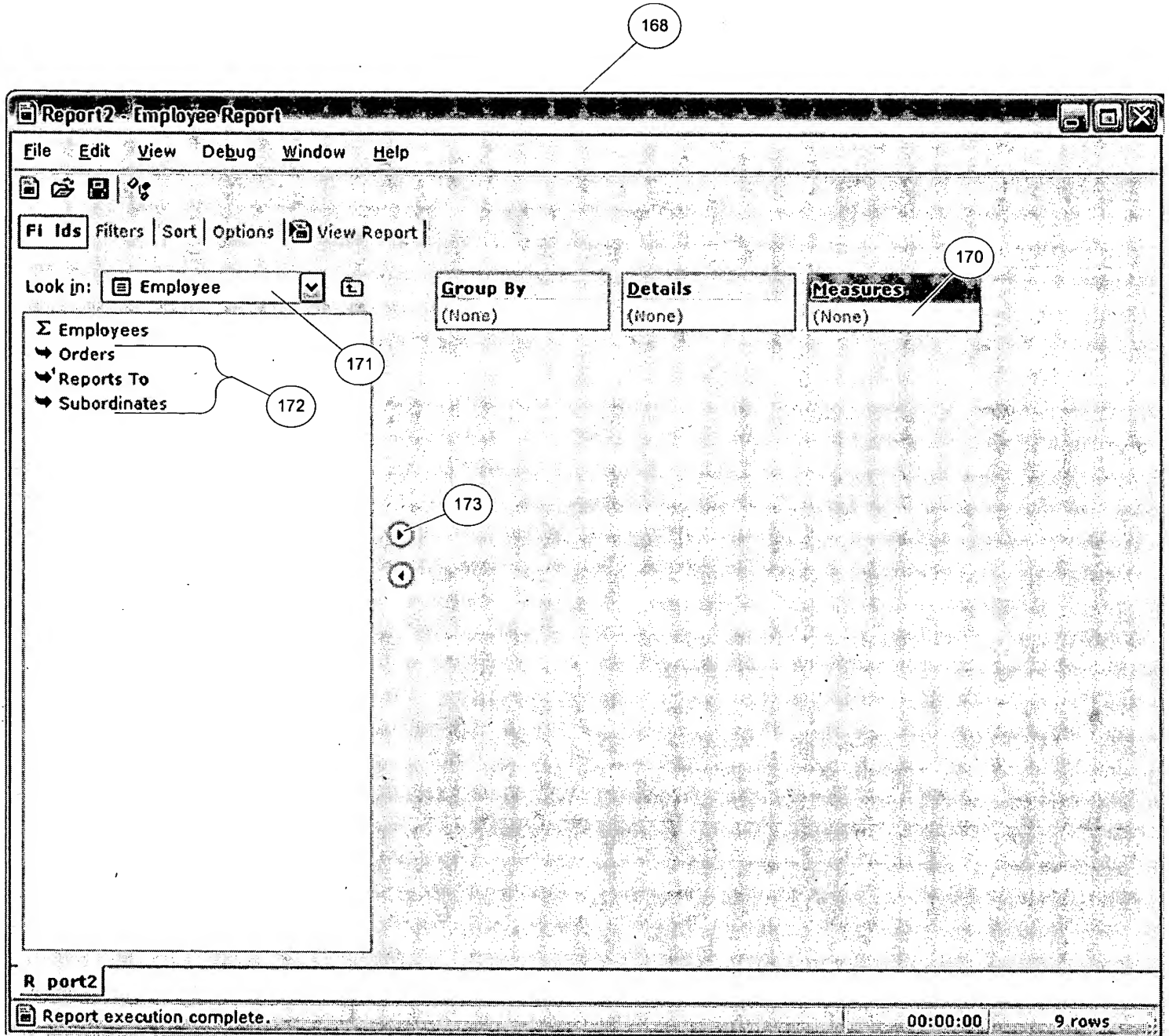


Fig. 9

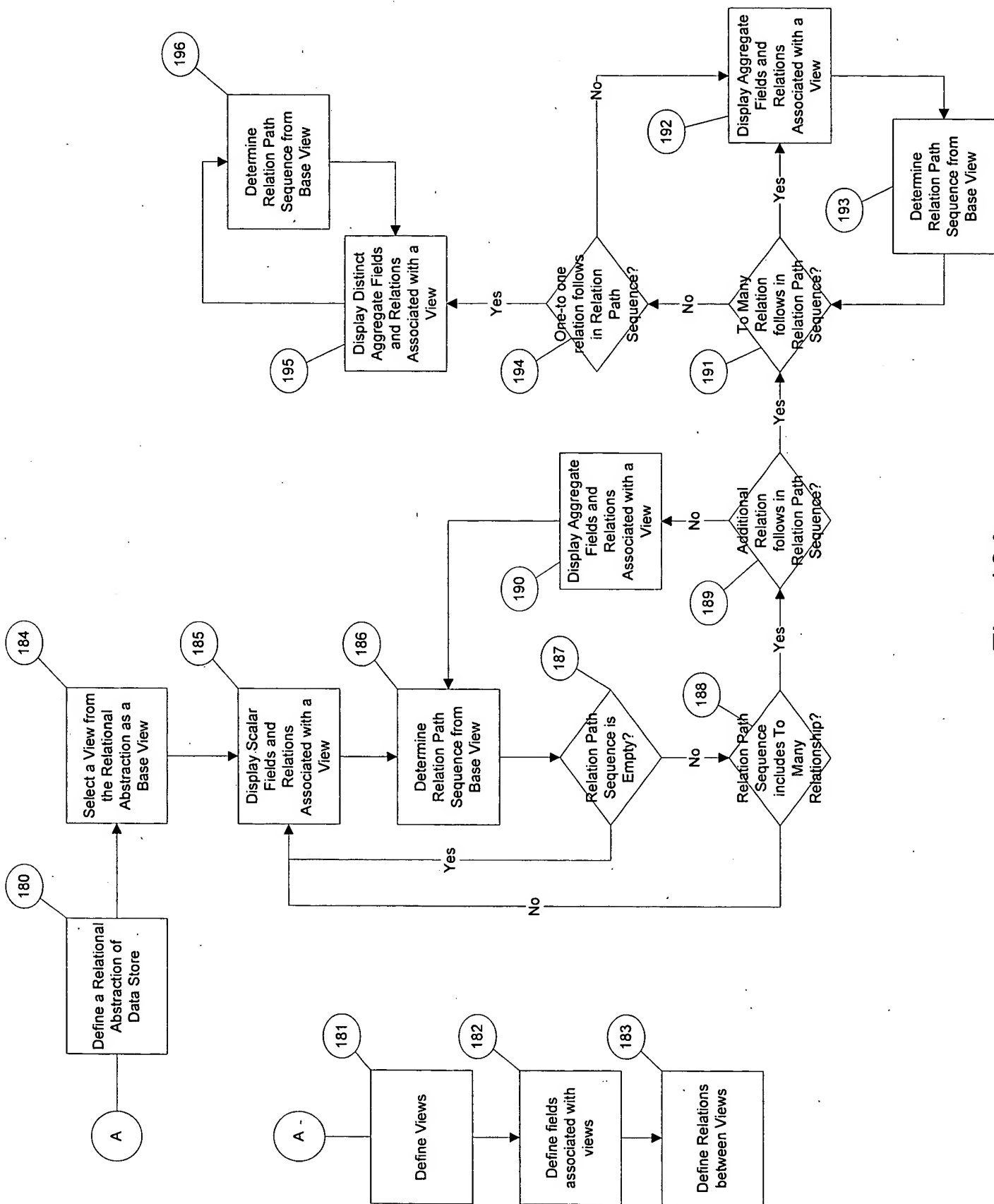


Fig. 10A

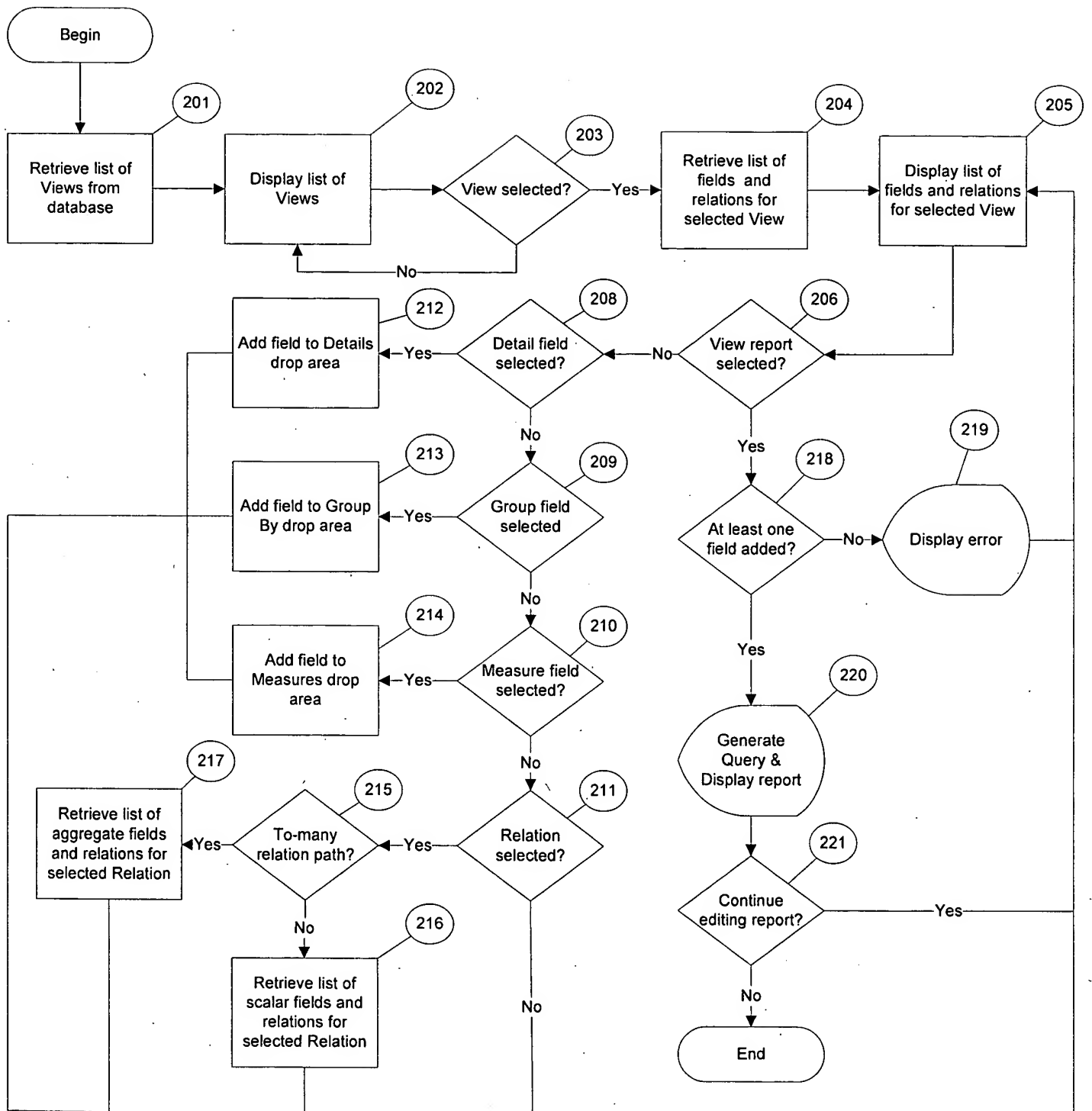


Fig. 10B

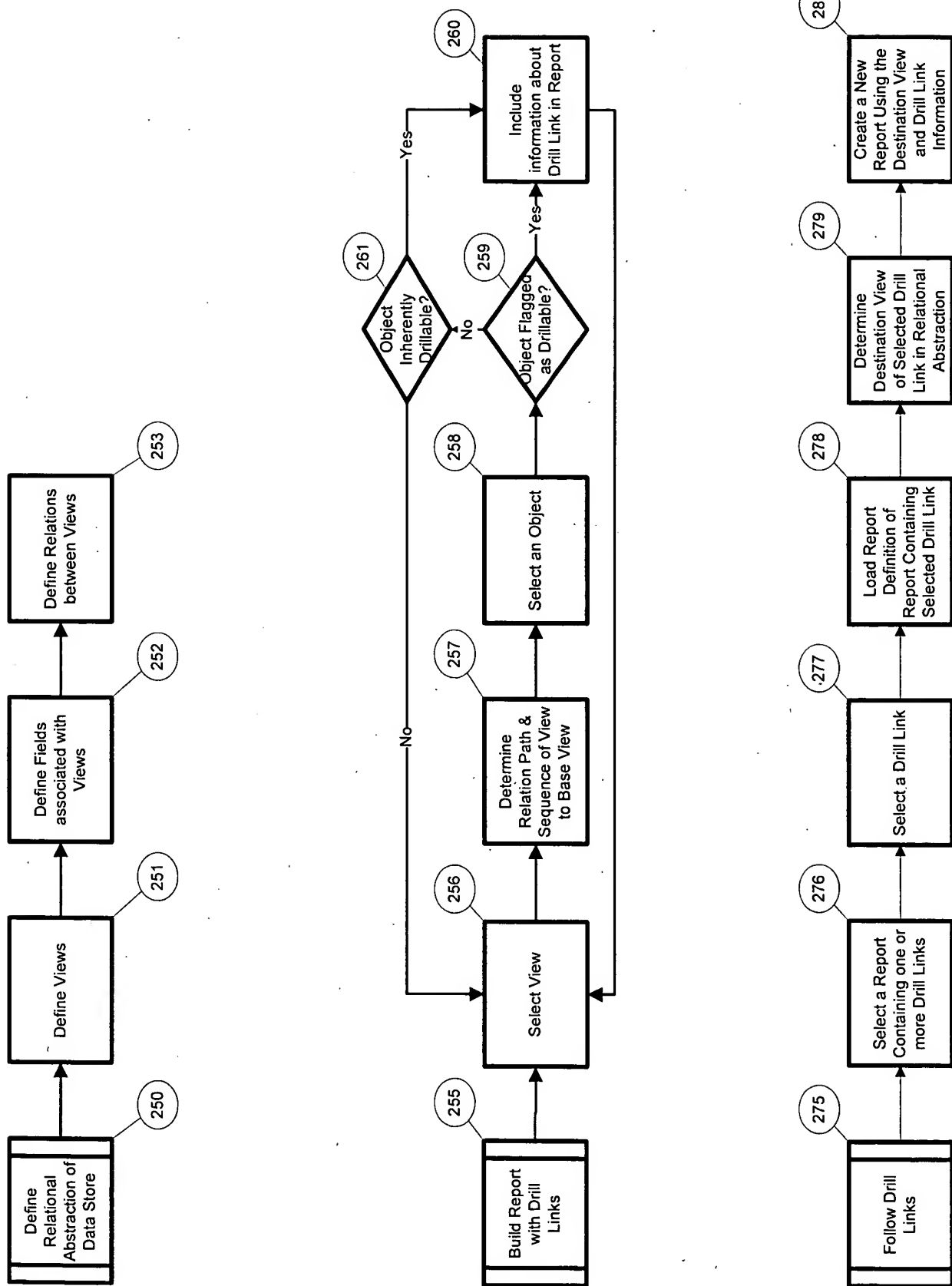


Fig. 11

300

ActiveViews - [mycustomerreport]

File Edit View Help

mycustomerreport

Details | Criteria | Options | View Report

mycustomerreport

Criteria: Customers with #Orders >= 10

Customer Count: 39

Country	Company Name	Address	City	Postal Code	#Orders
Austria	Ernst Handel	Kirchgasse 6	Graz	8010	30
	Piccolo und mehr	Geisweg 14	Salzburg	5020	10
	Subtotal (Austria)				40
Belgium	Suprêmes délices	Boulevard Tirou, 255	Charleroi	B-6000	12
	Subtotal (Belgium)				12
Brazil	Hanari Carnes	Rua do Paço, 67	Rio de Janeiro	05454-876	14
	Queen Cozinha	Alameda dos Canários, 891	Sao Paulo	05487-020	13
	Ricardo Adocados	Av. Copacabana, 267	Rio de Janeiro	02389-890	11
	Subtotal (Brazil)				38
Canada	Bottom-Dollar Markets	23 Tsawassen Blvd.	Tsawassen	T2F 8M4	14
	Mère Paillarde	43 rue St. Laurent	Montréal	H1J 1C3	13
	Subtotal (Canada)				27
Denmark	Vaffeljernet	Smagsloget 45	Århus	8200	11
	Subtotal (Denmark)				11
Finland	Wartian Herkku	Torikatu 38	Oulu	90110	15
	Subtotal (Finland)				15
France	Blondel père et fils	24, place Kléber	Strasbourg	67000	11
	Bon app'	12, rue des Bouchers	Marseille	13008	17
	La maison d'Asie	1 rue Alsace-Lorraine	Toulouse	31000	14
	Victuailles en stock	2, rue du Commerce	Lyon	69004	10
	Subtotal (France)				52

Fig. 12

ActiveViews - [Order2]

File Edit View Help

mycustomerreport

Order2

Details Criteria Options View Report

Order2

Criteria: Orders with Customer with (#Orders >= 10, Country = Austria)

Order Count: 40

Order Date	Required Date	Shipped Date	Freight	Ship Name	Ship Address	Ship City	Ship
7/17/1996	8/14/1996	7/23/1996	\$140.51	Ernst Handel	Kirchgasse 6	Graz	80
7/23/1996	8/20/1996	7/31/1996	\$146.06	Ernst Handel	Kirchgasse 6	Graz	80
11/11/1996	12/9/1996	11/20/1996	\$162.33	Ernst Handel	Kirchgasse 6	Graz	80
11/13/1996	12/11/1996	11/25/1996	\$360.63	Piccolo und mehr	Geislweg 14	Salzburg	50
11/29/1996	12/27/1996	12/2/1996	\$101.95	Ernst Handel	Kirchgasse 6	Graz	80
12/13/1996	1/10/1997	12/16/1996	\$94.77	Ernst Handel	Kirchgasse 6	Graz	80
12/23/1996	1/20/1997	12/26/1996	\$126.38	Ernst Handel	Kirchgasse 6	Graz	80
12/24/1996	1/21/1997	1/1/1997	\$122.46	Piccolo und mehr	Geislweg 14	Salzburg	50
1/2/1997	2/13/1997	1/10/1997	\$67.88	Ernst Handel	Kirchgasse 6	Graz	80
1/3/1997	1/31/1997	1/9/1997	\$73.79	Ernst Handel	Kirchgasse 6	Graz	80
1/27/1997	2/24/1997	3/3/1997	\$31.29	Piccolo und mehr	Geislweg 14	Salzburg	50
1/30/1997	2/13/1997	2/3/1997	\$458.78	Ernst Handel	Kirchgasse 6	Graz	80
2/11/1997	3/11/1997	2/18/1997	\$47.94	Ernst Handel	Kirchgasse 6	Graz	80
3/28/1997	4/25/1997	4/9/1997	\$5.29	Piccolo und mehr	Geislweg 14	Salzburg	50
4/22/1997	5/20/1997	5/16/1997	\$789.95	Ernst Handel	Kirchgasse 6	Graz	80
5/8/1997	6/5/1997	5/12/1997	\$339.22	Piccolo und mehr	Geislweg 14	Salzburg	50
6/17/1997	7/29/1997	7/4/1997	\$26.06	Ernst Handel	Kirchgasse 6	Graz	80
7/10/1997	8/7/1997	7/14/1997	\$96.78	Ernst Handel	Kirchgasse 6	Graz	80
7/11/1997	8/8/1997	7/18/1997	\$35.12	Piccolo und mehr	Geislweg 14	Salzburg	50
8/15/1997	9/12/1997	8/18/1997	\$477.90	Ernst Handel	Kirchgasse 6	Graz	80
9/12/1997	10/10/1997	9/19/1997	\$78.09	Ernst Handel	Kirchgasse 6	Graz	80

Fig. 13

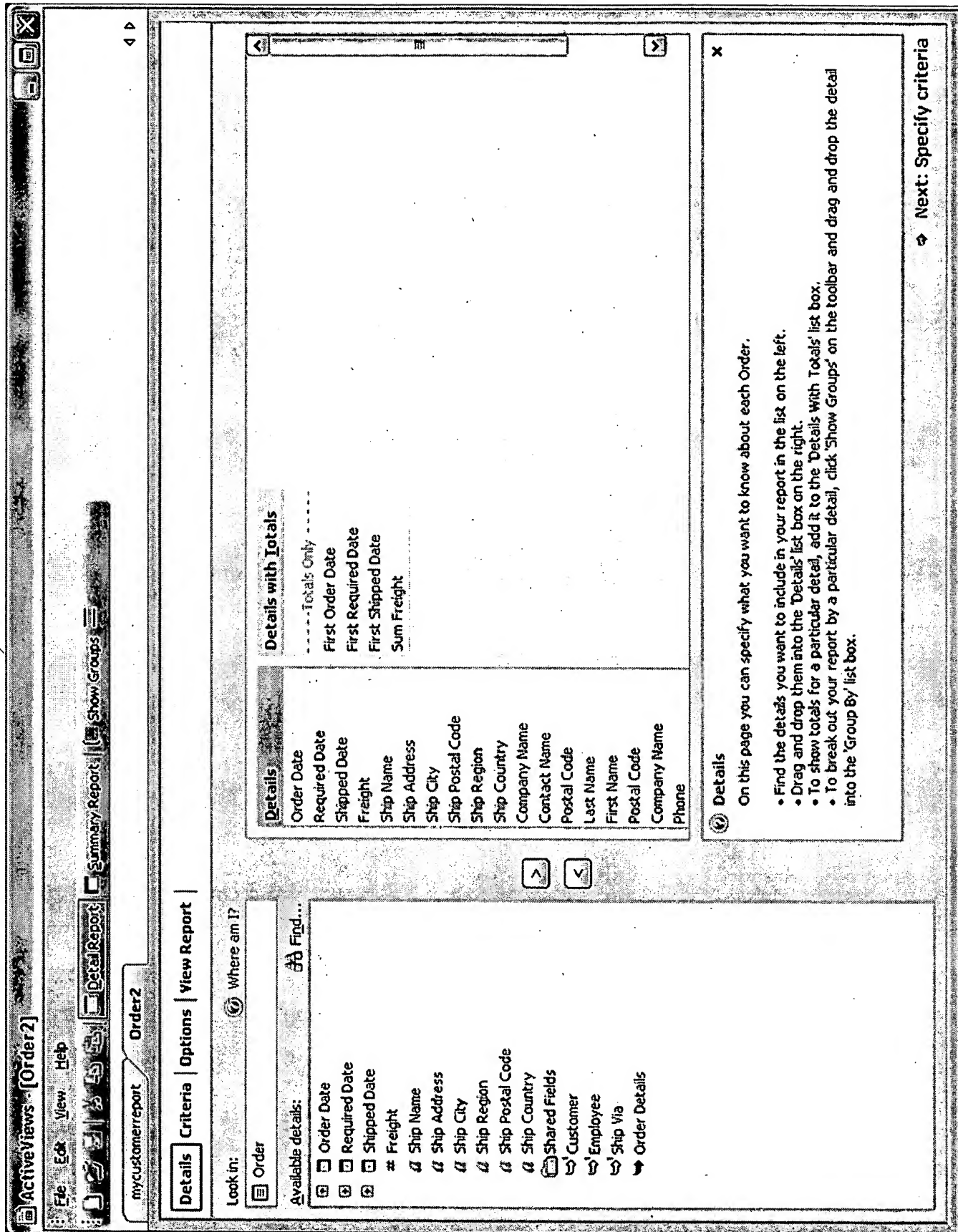


Fig. 14

340

Field Properties

General Format Behavior

☒ Allow grouping

☐ Allow drill

Template: (Any)

Save As... OK Cancel

341

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Field Properties

General Format Behavior

☒ Allow grouping

☒ Allow drill

Template: (Any)

(Any)
Order2

Save As... OK Cancel

351

Fig. 15